

The background of the slide features a panoramic view of the Rochester skyline, with various skyscrapers and buildings visible in the distance. In the foreground, there is a dense forest of green trees, likely from a hillside overlooking the city. The entire scene is captured in a slightly hazy or misty atmosphere. Two horizontal orange lines are positioned above and below the main text, framing it within a white rectangular area.

CITY OF ROCHESTER

CITY OF ROCHESTER: STAKEHOLDERS

External Stakeholders

- Rochester Gas & Electric/ Iberdrola
- Constellation Energy
- Genesee Transportation Council
- Rochester City School District
- Rochester District Heating Cooperative
- Friends of the Garden Aerial
- Center for Environmental Initiatives
- Rochester Institute of Technology Institute for Sustainability
- University of Rochester
- Rochester Genesee Regional Transportation Authority
- Genesee/ Finger Lakes Regional Planning Council
- Recycled Energy Development
- Monroe County

City of Rochester Staff

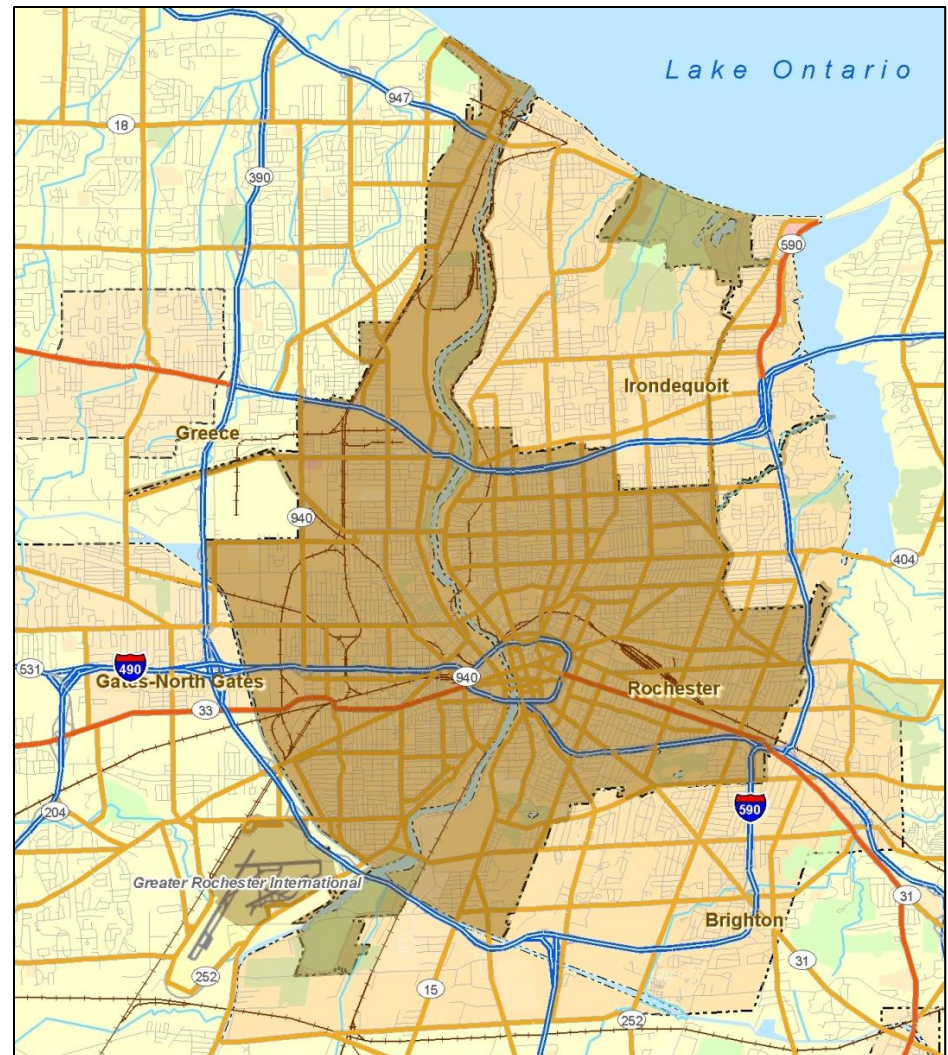
- Commissioner of Environmental Services
- Energy and Sustainability Manager
- City Engineer
- Manager of Environmental Quality
- Director of Planning and Zoning
- Transportation Specialist
- Environmental Planner
- Manager of Building Services
- HVAC Engineer
- Managing Architect
- Streetlight Program Coordinator
- Manager of Plan Review and Permits
- Assistant Director of Operations/Fleet Mgr.

CITY OF ROCHESTER: BASELINE ASSESSMENT

City Overview

Land Area	35.78 sq. mi
Population	210,565
Daytime Population	271,268
Median HH Income	\$29,942

SOURCE: ACS 2010-2012



CITY OF ROCHESTER: BASELINE ASSESSMENT

Existing Energy, Sustainability, and Climate Action efforts

City Plans

- City of Rochester Greenhouse Gas Emissions Inventory for the Baseline Year of 2008 (2011)
- City of Rochester Municipal Operations Climate Action Plan (2013)
- Rochester Bicycle Master Plan (2011)
- Community Climate Action Plan (NYSERDA CGC)
- Finger Lakes Regional Sustainability Plan (2013)
- Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035 (2011)

Renewable Energy

- Renewable energy certificates purchased
- Geothermal at Riverside Cemetery
- PV at Arnett Library, Public Market
- Feasibility study for solar at former landfill

Energy Efficiency

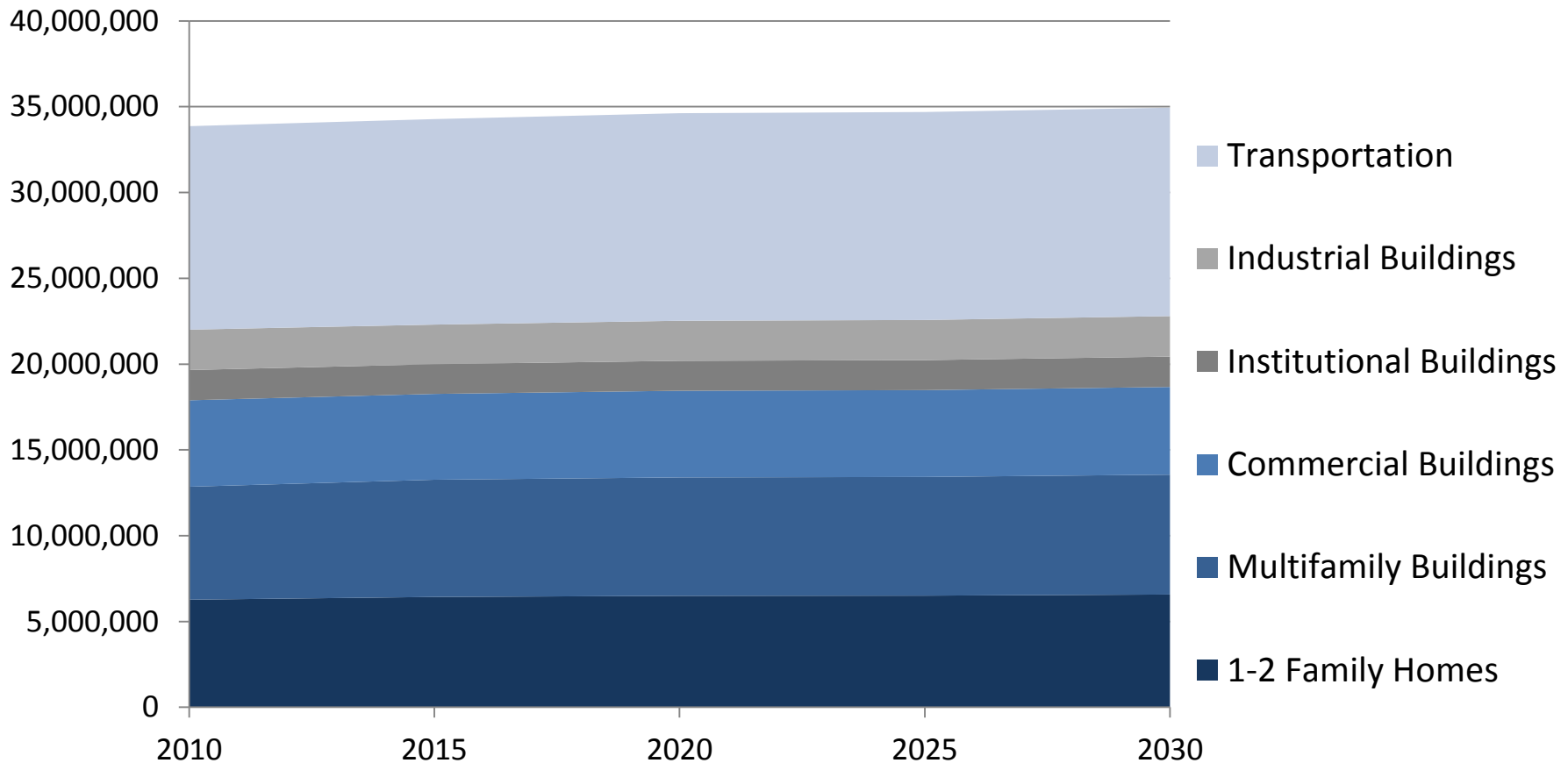
- Energy Audits at City-owned facilities
- Established Office of Energy and Sustainability
- Permitting/ zoning updates for PV, EV charging
- Portfolio Manager to track energy usage
- Streetlight upgrades
- US DOE Better Buildings Challenge
- Building envelope improvements
- Upgrade HVAC systems
- Energy management systems

Transportation

- Greening fleet
- Bicycle/ pedestrian infrastructure
- Green fuel station/ EV charging stations

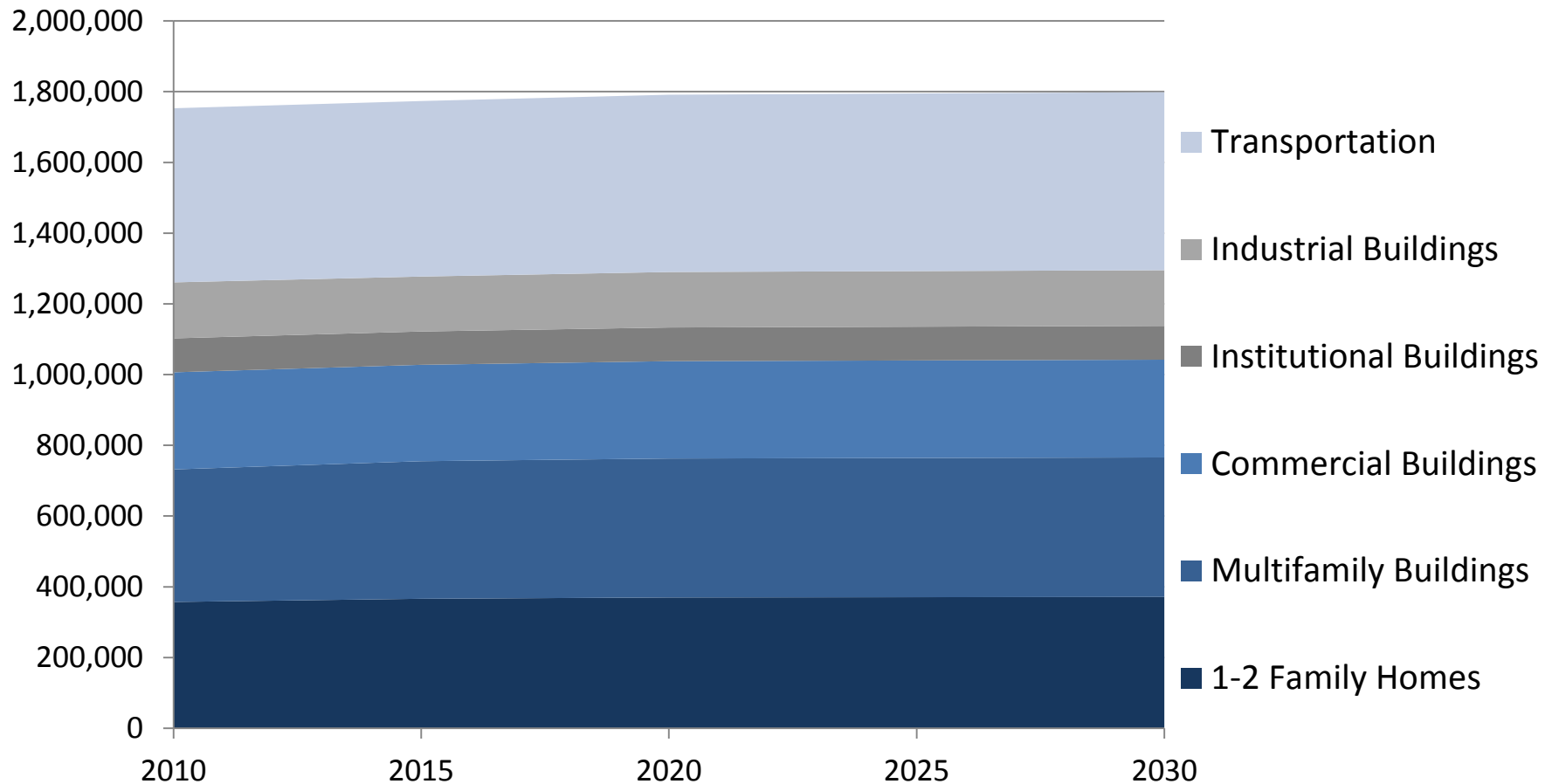
CITY OF ROCHESTER: BASELINE ASSESSMENT

Energy Consumption Overview (mmBtu)



CITY OF ROCHESTER: BASELINE ASSESSMENT

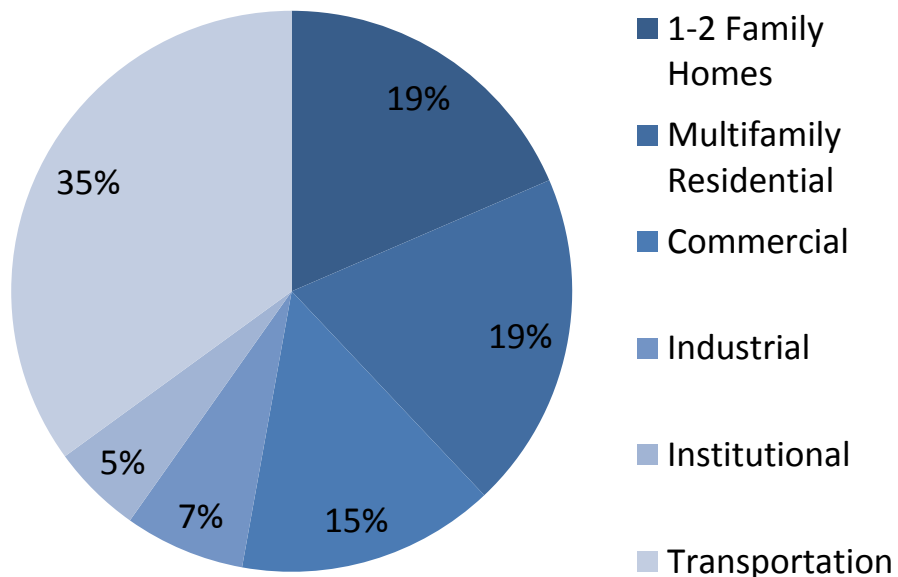
Greenhouse Gas Emissions Overview (CO_{2e})



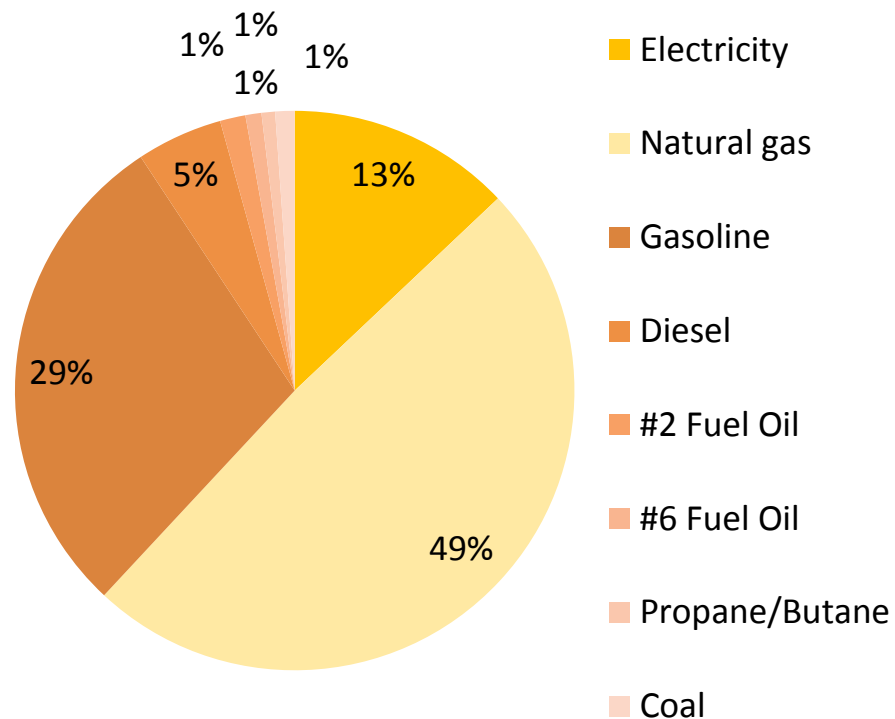
CITY OF ROCHESTER: BASELINE ASSESSMENT

Breakdown of Citywide Energy Consumption

By End User



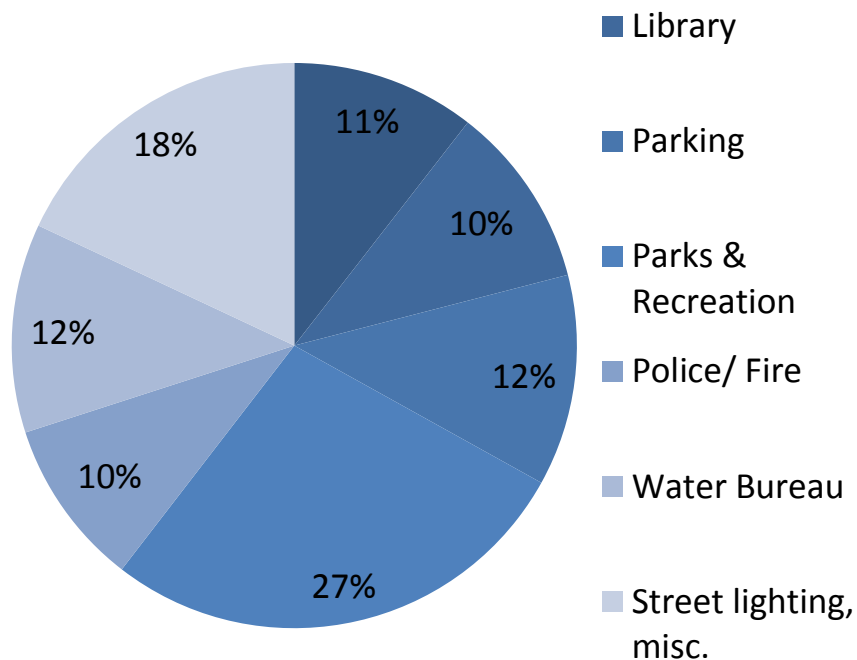
By Fuel Source



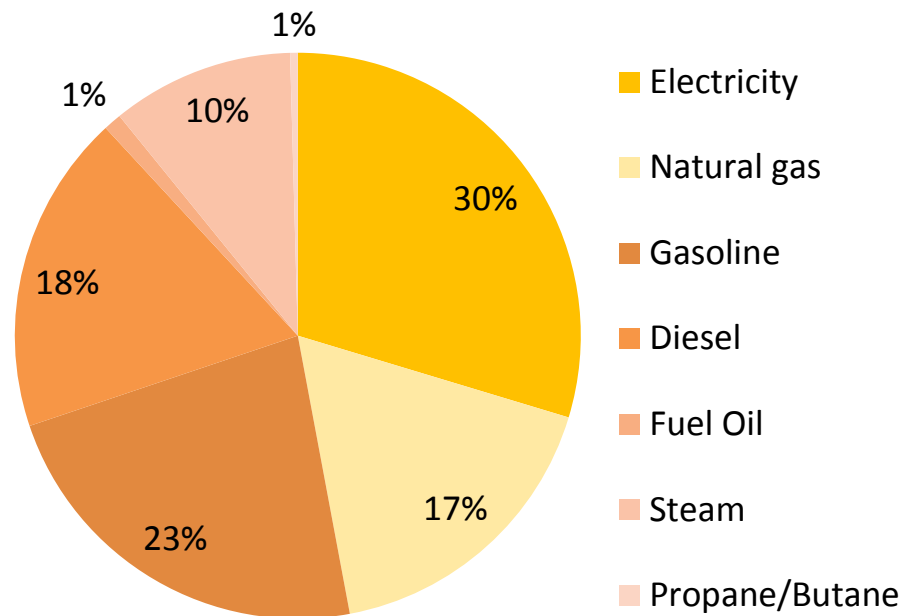
CITY OF ROCHESTER: BASELINE ASSESSMENT

Breakdown of Municipal Energy Consumption

By End User

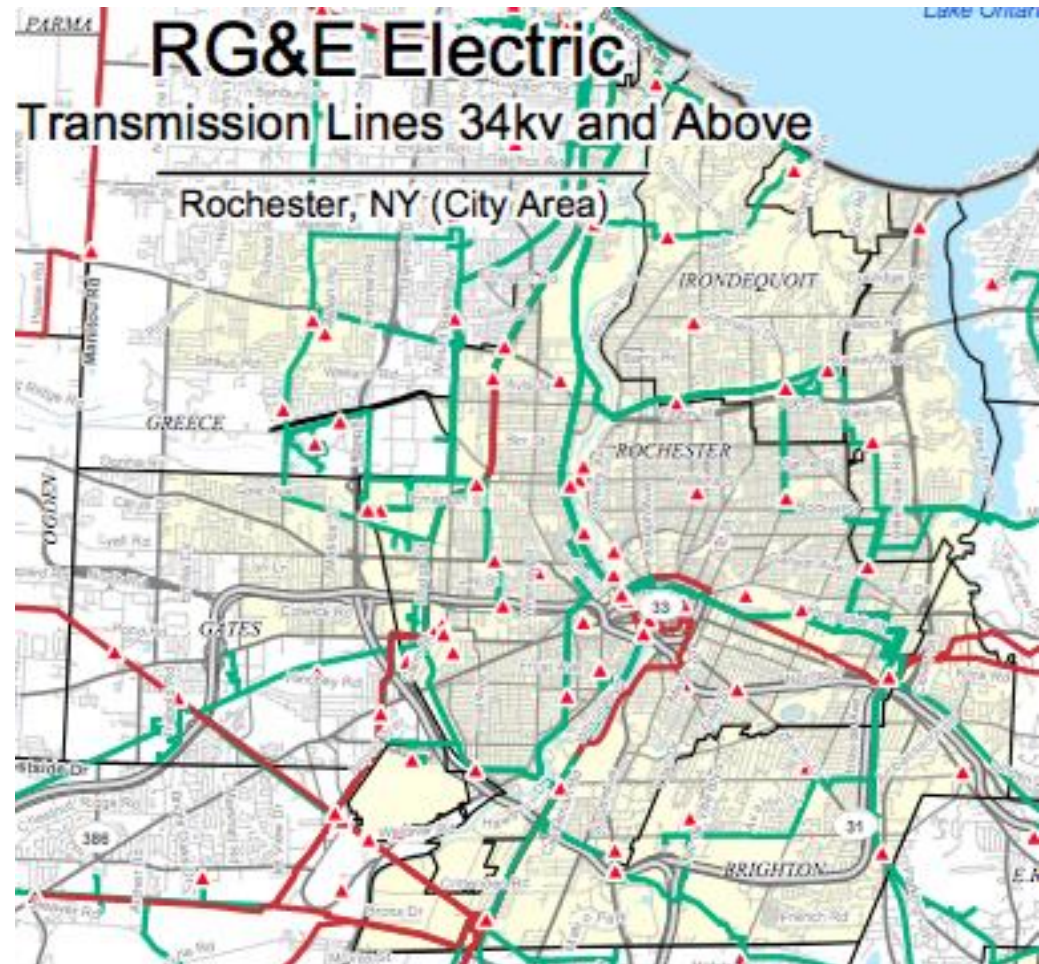
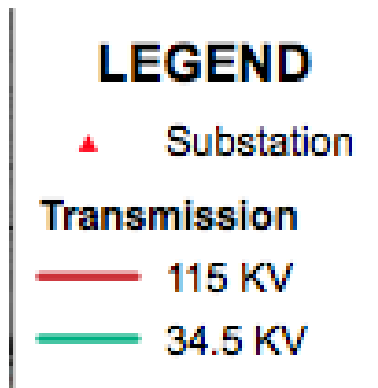


By Fuel Source



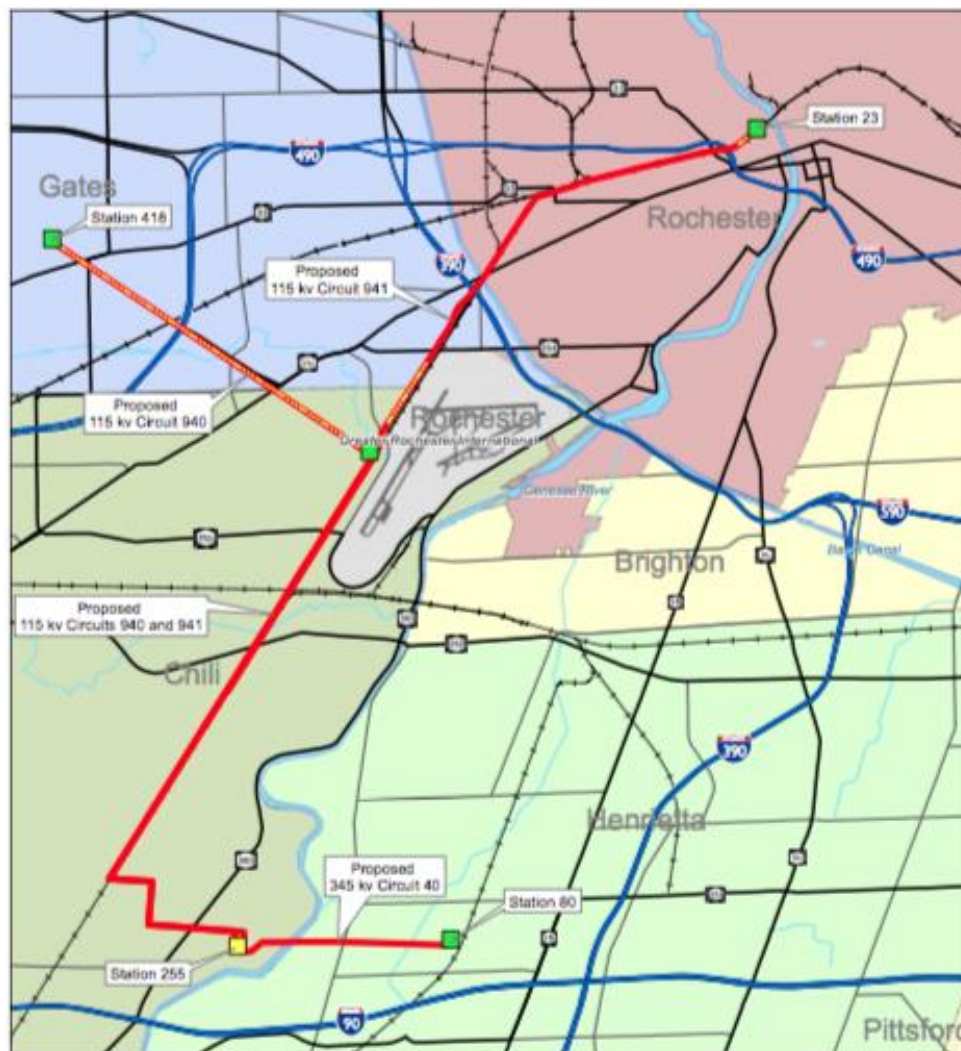
CITY OF ROCHESTER: BASELINE ASSESSMENT

*Existing Electric
Transmission Lines
and Substations*



CITY OF ROCHESTER: BASELINE ASSESSMENT

Planned Electrical Transmission System Upgrades



CITY OF ROCHESTER: BASELINE ASSESSMENT

Existing Natural Gas Transmission Mains

Pipeline and Hazardous
Materials Safety Administration

NATIONAL PIPELINE MAPPING SYSTEM

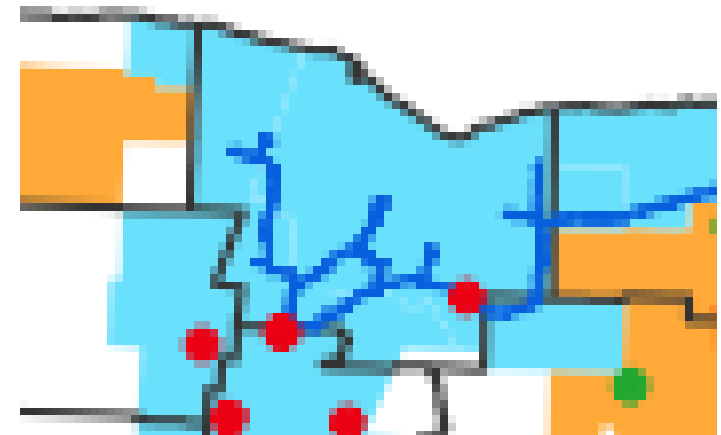
Legend

— Gas Transmission Pipelines



Gas Transmission Mains and Purchase Points

NYSEG and RG&E



LEGEND

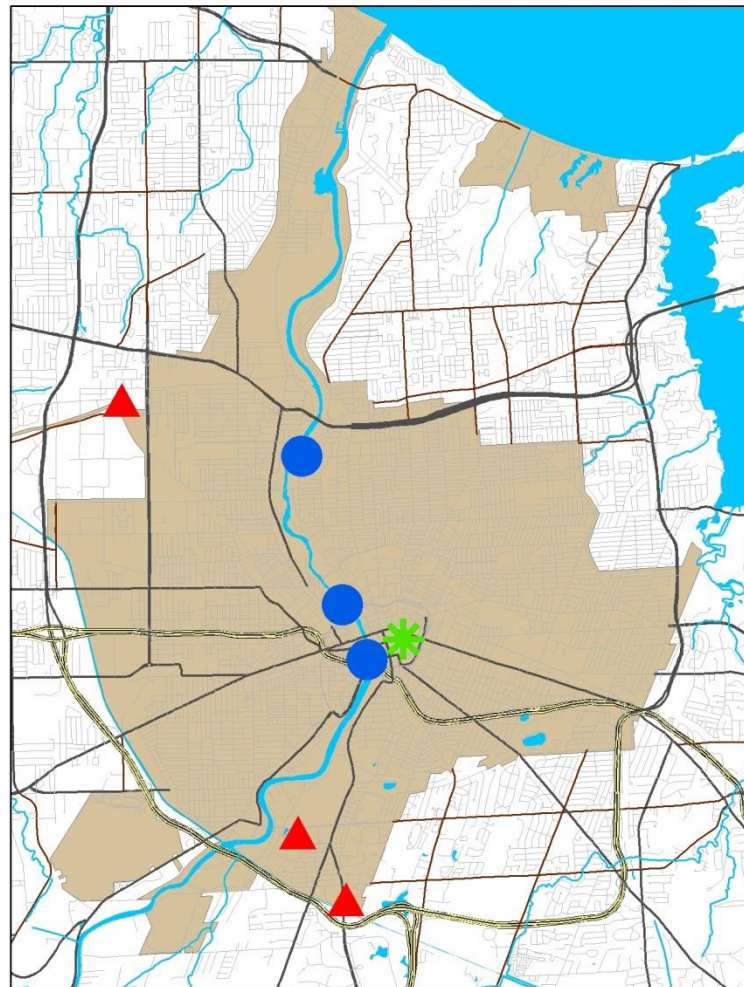
- | | | | |
|----------------|--------------------|-----------|---------------------|
| Orange box | NYSEG Gas | Red dot | Gate Station |
| Light blue box | RG&E Gas | Green dot | Town Border Station |
| Orange line | NYSEG Transmission | | |
| Blue line | RG&E Transmission | | |



CITY OF ROCHESTER: BASELINE ASSESSMENT

Energy Generation and Combined Heat/ Power

-  Combined Heat/ Power
-  District Heating (steam)
-  RG&E Hydro-Electric



CITY OF ROCHESTER: EXISTING GOALS

Existing goals

- Better Buildings Challenge: Reduce municipal building energy usage by 20% from 2009 baseline by 2020
- Municipal Climate Action Plan Target: reduce greenhouse gas emissions 20% from 2008 baseline by 2020

CITY OF ROCHESTER: OTHER FINDINGS

Other key findings

- Cost-effective opportunities to reduce energy use at City facilities (lighting fixtures and controls; high efficiency equipment drives; building envelope sealing; operating sequences during unoccupied times)
- Sound management and decision-making procedures have resulted in cost savings and strategic investment in energy efficiency and renewable energy projects
- Opportunities to expand district heating downtown, possibly to include electricity generation
- Opportunities for additional cost savings through ESCOs and performance contracts
- Opportunities to use more clean fuels in municipal and community fleets.

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Planning and Coordination

- Procure natural gas through ESCO
- Consider collaboration to leverage lower energy prices
- Continue tracking building energy performance

Energy Distribution and Supply

- Reduce fugitive emissions from natural gas pipelines
- Support Existing District Energy
- Facilitate new/ expanded district energy and micro-grids
- Facilitate installation of renewable energy
- Improve/ extend natural gas infrastructure

Transportation

- Improve bicycle and pedestrian infrastructure
- Incentivize/ promote clean fuel vehicles (City and other fleets)
- Create pilot anti-idling program for City fleets
- Institute travel demand management strategies
- Promote alternative modes for commuting by City employees
- Replace Street lighting with LEDs/ Reduce street lighting

Buildings

- Implement measures recommended in energy audits
- Create guidebook and rewards for city employees best practices
- Engage commercial property managers, homeowners, tenants
- Streamline approvals

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Planning and Coordination

Goal: Reduce cost, improve efficiency and ensure sufficient supply of energy

<u>Initiatives</u>	<u>Type</u>	<u>Timeframe</u>	<u>Partners</u>
Procure natural gas through ESCO	Competitive bidding	Short	ESCOs
Consider collaboration to leverage lower energy prices	Partnership	Medium	Monroe County, City School District
Continue tracking building energy performance	Staff assignment	On-going	Building managers

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Planning and Coordination – Key Challenges

- Consolidation of ESCOs reduces competition and raises costs
- Differing energy needs, priorities and approaches among organizations
- On-going monitoring requires staff time to enter and check data

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Energy Distribution and Supply

Goal: Improve and expand infrastructure to ensure sufficient capacity for economic development and minimize greenhouse gas emissions

<u>Initiatives</u>	<u>Type</u>	<u>Timeframe</u>	<u>Partners</u>
Reduce fugitive natural gas emissions	Legislation/Regulations	Long	NYS Legislature; PSC
Support Existing District Energy	Partnership	On-going	RDHC, RED, PSC, RG&E
Facilitate new/expanded district energy and micro-grids	Legislation/Regulations		PSC, RG&E, Universities, RED
Lead/facilitate installation of renewable energy	Capital / regulations	Medium	RG&E, property owners
Improve/extend natural gas infrastructure	Capital investment	Short	RG&E, PSC

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Energy Distribution and Supply – Key Challenges

- Although the NYS Energy Highway Blueprint policy supports microgrids in concept, PSC and Public Service Law regulations are complex and unclear
- Lack of regulatory consistency increases the cost of solar installations
- Code revisions require legislative action by City Council
- High initial cost; long pay-back for renewable energy
- Evolving technologies
- Physical challenges in improving natural gas capacity at key sites

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Transportation

Goal: Reduce petroleum dependence and greenhouse gas emissions from vehicles.

<u>Initiatives</u>	<u>Type</u>	<u>Timeframe</u>	<u>Partners</u>
Improve bicycle and pedestrian infrastructure/support transit	Capital	Short/ Ongoing	RGRTA, GTC
Incentivize/promote clean fuel vehicles	Capital	Medium	Government/ private fleets
Institute travel demand management strategies	Program/ Behavior	Short	Downtown employers
Create pilot anti-idling program	Program	Short	
Promote alternative modes for commuting by City employees	Program/ Behavior	Short	RGRTA
Replace Street lighting with LEDs/ Reduce street lighting	Capital/ Policy	Medium	RG&E/ PSC

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Transportation – Key Challenges

- Limited funds for to improve bicycle/pedestrian infrastructure improvements. Limited staff to manage improvement projects.
- Need for each party to understand the advantages; political barriers
- Higher cost of clean-fuel vehicles
- Entrenched behaviors difficult to change.
- Limited transit routes and schedules.
- Organizational culture and employee attitudes
- Insufficient alternative-fuel stations

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Buildings

Goal: Increase energy efficiency of municipal and community buildings

<u>Initiatives</u>	<u>Type</u>	<u>Timeframe</u>	<u>Partners</u>
Implement measures recommended in energy audits	Capital/ Behaviour	Short- Medium	ESCO, NYPA, NYSERDA
Create guidebook and rewards for city employees best practices	Program/ Behavior	Short	
Engage commercial property managers, homeowners, tenants	Program	Short	Business/ real estate orgs.
Streamline approvals	Permitting	Short	NYSERDA

CITY OF ROCHESTER: PRELIMINARY RECOMMENDATIONS

Buildings – Key Challenges

- Staffing
- Prioritizing a large number of ECMs from multiple buildings
- Standardizing fixtures, drives
- Employee buy-in